

COR000220137  
C37 T15

# STATE OF COLORADO

Bill Ritter, Jr., Governor  
Martha E. Rudolph, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

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Colorado Department  
of Public Health  
and Environment

**RECEIVED**

**MAR - 5 2010**

**ECEJ**

March 4, 2010

John Shober, Environmental Health and Safety Engineer  
Abound Solar  
9586 I-25 East Frontage Road  
Longmont, CO 80504

**Subject: Inspection Report for the March 2, 2010, Compliance Inspection and  
Complaint Inspection  
EPA Identification Number COR000220137**

Dear Mr. Shober:

On March 2, 2010, inspectors from the Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division (the Division) conducted a hazardous waste compliance inspection and a complaint inspection at Abound Solar. Based upon observations made at the time of that inspection, a Compliance Advisory was issued for deficiencies with the Colorado Hazardous Waste Regulations. Please submit a written response to the Compliance Advisory no later than April 2, 2010.

For your information, I have attached a copy of the inspection report for the referenced compliance inspection. Please contact me at (303) 692-3429 if you have any questions regarding this matter.

Sincerely,

Beth Ann Williams, Compliance/Enforcement Officer  
Hazardous Waste Compliance Unit

Copies to:

Randy Lamdin, EPA  
Case File

Colorado Department of Public Health and Environment  
Hazardous Materials and Waste Management Division  
Hazardous Waste Inspection Report  
for a  
Large Quantity Generator



**ABOUT SOLAR**



**GENERAL INFORMATION**

**Facility:** Abound Solar

**Facility Address:** 9586 I-25 East Frontage Road, Longmont, Weld County, CO 80504

**EPA ID Number:** COR000220137

**Notification:** Large Quantity Generator

**Compliance Evaluation Inspection/Complaint Inspection**  
**March 2, 2010**

Colorado Department of Public Health and Environment  
Hazardous Materials and Waste Management Division  
Hazardous Waste Inspection Report  
for a  
Large Quantity Generator



<b>PREARRANGED:</b> Yes	<b>TIME IN:</b> 8:45 am	<b>TIME OUT:</b> 1:30 pm
<b>FACILITY CONTACT &amp; TITLE:</b> John Shober, Environmental Health and Safety Engineer		
<b>PARTICIPANTS:</b> Beth Ann Williams, Compliance Inspector, Colorado Department of Public Health and Environment Joyce Williams, Unit Leader/ Enforcement Unit, Colorado Department of Public Health and Environment John Shober, Environmental Health and Safety Engineer, Abound Solar Peter Ganison, Environmental Health and Safety Specialist, Abound Solar		
<b>FACILITY PHONE NUMBER:</b> (303) 682-6118		
<b>PRODUCT OR SERVICE:</b> This facility manufactures solar panels.		
<b>FACILITY START DATE:</b> The facility started in 2007 in Fort Collins, Colorado. It has been at this Longmont location under the name AVA Solar since 2008. The facility changed its name to Abound Solar in April 2009.	<b>NUMBER OF EMPLOYEES:</b> There are 150 employees at this facility working four shifts. The facility operates 24 hours a day, seven days a week.	

**Results of Previous Inspections**

This is the first inspection at this facility.

**FACILITY INSPECTION**

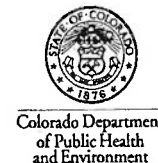
**Inspection Access**

On the morning of March 2, 2010 Beth Ann Williams and Joyce Williams from the Colorado Department of Public Health and Environment (the Department), Hazardous Materials and Waste Management Division conducted an announced compliance evaluation inspection at Abound Solar to determine compliance with the Colorado Hazardous Waste Regulations (6 CCR 1007-3).

After scheduling, but prior to the inspection, the Department received an anonymous complaint alleging cadmium-contaminated solar panels may have been shipped to customers due to a filter problem. The inspectors investigated this allegation at the same time as the routine compliance evaluation inspection.

Upon arrival at the facility, the inspectors were introduced to Mr. John Shober, Environmental Health and Safety Engineer and Mr. Peter Ganison, Environmental Health and Safety Specialist from Abound Solar. The inspectors were escorted to a conference room where the inspectors presented their credentials and held an opening conference.

Colorado Department of Public Health and Environment  
Hazardous Materials and Waste Management Division  
Hazardous Waste Inspection Report  
for a  
**Large Quantity Generator**



### **Facility**

According to Mr. Shober, Abound Solar began in 2007 as the brain-child of scientists at Colorado State University in Fort Collins, CO. Until April 2009 Abound Solar was known as AVA Solar. The facility, which has operated from this location since 2008, provides a continuous, automated manufacturing process for solar panels using glass coating with a cadmium telluride thin film.

### **Manufacturing Processes**

Abound Solar manufactures thin-film modules utilizing an automated, dry deposition process. Due to the proprietary nature of the technologies used at this facility, processes will not be discussed in this report. Additionally, no pictures were taken at the facility during this inspection.

### **Hazardous Waste Streams**

The following hazardous waste streams and associated waste codes were identified during the inspection of this facility:

1. Broken glass – D006
2. Personal Protective Equipment (PPE) – D006
3. Rinse Waters – D006
  - Facility personnel stated that the waste water does not exhibit the toxicity characteristic for cadmium using the toxicity characteristic leaching procedure (TCLP) method 1311. However, because they have not yet installed their planned wastewater treatment unit, and the rinse water must have the metals precipitated out prior to disposal in the publicly owned treatment works (POTW), they have chosen to dispose of the rinse water as hazardous waste at this time.
4. Rags – D001
  - Facility personnel stated that, although the rags are not hazardous waste (they are not capable of spontaneous ignition, and if ignited they would not burn vigorously and persistently) they are conservatively being managed and disposed of as hazardous waste, nonetheless.

All hazardous waste is disposed of off-site at Clean Harbors in Deer Trail, Colorado, which is a permitted Treatment, Storage and Disposal Facility (TSDF).

### **Complaint Investigation**

As previously stated, after scheduling the inspection, but prior to arrival, the Department received an anonymous complaint alleging cadmium-contaminated solar panels may have been shipped to customers due to a filter problem. Facility personnel stated that on January 1, 2010 the housing unit for a rinse water filter caught on fire causing the filter to drop out of the housing. However, Mr. Shober stated that the line was immediately and automatically shut down preventing units from progressing through the system until the filter and its

Colorado Department of Public Health and Environment  
Hazardous Materials and Waste Management Division  
Hazardous Waste Inspection Report  
for a  
**Large Quantity Generator**



housing were replaced. The incident was minor and did not require the facility contingency plan to be implemented. The inspectors did not find evidence to substantiate the allegations of the complainant.

**Publicly Owned Treatment Works (POTW)**

The POTW is Saint Vrain Sanitation District. Wastewater from rinsing operations are planned to be discharged to the POTW as soon as their wastewater treatment unit is installed.

**Air Pollutant Emission Notice**

The Construction Permit Unit of the Air Pollution Prevention Division at the Department issues construction permits, also known as air pollutant emissions notices (APENs) to commercial and industrial air pollution sources in Colorado in order to ensure compliance with air quality regulations. The regulations are designed to protect the public's health and welfare and to maintain ambient air quality standards. Abound Solar has obtained an APEN number, notifying as a minor source of air pollution.

**Emergency Response Coordinator**

The Emergency Response Coordinator for the facility is John Shober, with Peter Ganison acting as an alternate.

**Current generator status:**

This facility operates as a large quantity generator of hazardous waste.

**Hazardous Waste Accumulation Areas (SAA)**

Accompanied by Messrs. Shober and Ganison, the inspectors proceeded to inspect the entire facility.

Satellite Accumulation Areas

Messrs. Shober and Ganison accompanied the inspectors to established satellite accumulation areas as follows:

- The east wall of the Regulated Room
- Personal Decon Room #1
- Personal Decon Room #2
- Overspray Removal Aarea
- Equipment Decon Room #1
- Lab
- Backend/Production Line

All SAA containers were 55-gallon, closed drums in good condition; labeled with the words "Hazardous Waste"; located at or near the point of generation; and inspected weekly.

Colorado Department of Public Health and Environment  
Hazardous Materials and Waste Management Division  
Hazardous Waste Inspection Report  
for a  
**Large Quantity Generator**



**SPECIAL NOTE:** Joyce Williams, Unit Leader of the Compliance Enforcement Unit has authorized the facility to establish SAA containers located in the overspray removal area and the backend/production line area as roving satellites in order to accommodate the facility's unique need to move the SAAs up and down the line for the satellite storage of broken glass (D006).

90-day Accumulation Area

Messrs. Shober and Ganison accompanied the inspectors to the following 90-day area:

- Equipment Decon Room #2
  - One cubic yard box of personal protective equipment (PPE) in the 90-day accumulation area was not labeled with the words "Hazardous Waste" and did not have an accumulation start date. Facility personnel corrected these deficiencies at the time of the inspection.

**Tanks**

At the time of the inspection the facility had one 500-gallon tank in the Mechanical Room. Another 2,000-gallon tank is planned for the near future. According to Mr. Shober, the 500-gallon tank was empty but is currently being used to store non-hazardous rinse water prior to shipping and disposing of the rinse water as hazardous waste. The tank was not labeled with the words "Hazardous Waste" and did not have an accumulation start date. Since the rinse water is being disposed of as hazardous waste until the facility installs their wastewater treatment unit, the inspectors advised that the facility either ship the rinse water as non-hazardous waste or, if they choose to continue to ship and dispose of the rinse waters as hazardous waste, then they should manage the tank as a hazardous waste tank, complying with the requirements of Subpart J.

**Universal Waste**

On the day of the inspection the facility was not yet generating universal waste.

**Used Oil:**

On the day of this inspection, the facility was generating used oil and storing the used oil in a container in the Mechanical Room. The container was not properly marked or labeled with the words "Used Oil." Facility personnel corrected this deficiency at the time of the inspection.

**Hazardous waste treatment:** On the day of this inspection, Abound Solar was not conducting generator treatment or land disposal restriction (LDR) treatment of hazardous waste. However, Mr. Shober stated that they plan to install a compaction unit for hazardous waste rags. The inspectors explained to Mr. Shober that A generator performing on-site compaction (treatment) of its own waste shall be considered to have a state RCRA permit (Permit By Rule) if the following conditions are met:

- The rags are compacted in a container.
- The rags are being compacted (treated) to reduce their volume.
- The facility complies with the accumulation containers requirements.
- The facility develops and maintains onsite a written waste analysis plan (WAP).

Colorado Department of Public Health and Environment  
Hazardous Materials and Waste Management Division  
Hazardous Waste Inspection Report  
for a  
Large Quantity Generator



**Wastewater treatment unit/discharge permit:** Abound Solar plans to operate a wastewater treatment unit prior to discharge to the POTW. The facility has not yet installed the unit.

**DOCUMENT REVIEW**

The following documents associated with the management of hazardous waste were reviewed at the time of this inspection:

- Training records for personnel involved with the management of hazardous waste.
  - The facility did not ensure a person trained in hazardous waste management was conducting the training. Both Messrs. Shober and Ganison require additional hazardous waste training.
- The most current version of the Abound Solar contingency plan.
  - Although all the elements required in the contingency plan were eventually found, the required plan information was not readily or easily available. There were no issues identified in the review of this document. However, the inspectors strongly recommend utilizing the Department's contingency plan template or otherwise organizing the contingency plan.
- The 2009 Biennial Report. There were no issues identified in the review of this document.
- Land disposal restriction (LDR) notification forms.
  - There were no issues identified for enforcement action. However, the inspectors recommended the facility consider filing an LDR for each waste stream going to each treatment, storage and disposal facility (TSDF) to eliminate inconsistencies in LDR forms attached to each manifest.
- Hazardous waste manifests for January 2008 through present. There were no issues identified in the review of these documents.

**COVERAGE AREAS**

**General Requirements (262.10 – 262.12).** No violations were observed during this inspection.

**Manifest Requirements (262.20 – 262.23).** No violations were observed during this inspection.

**Land Disposal Restriction Requirements (262.7(a)(2)).** No violations were observed during this inspection.

**Pre-Transport Requirements (262.30 – 262.34).** The following pre-transport requirements were evaluated during this inspection:

- On-Site accumulation time limit (262.34(a)). No violations were observed during this inspection.

Colorado Department of Public Health and Environment  
Hazardous Materials and Waste Management Division  
Hazardous Waste Inspection Report  
for a  
Large Quantity Generator



- Marking accumulation containers with the words "Hazardous Waste" (262.34(a)(3)).
  - One cubic yard box of PPE in the 90-day accumulation area was not labeled with the words "Hazardous Waste." Facility personnel corrected this deficiency at the time of the inspection.
- Marking accumulation containers with an accumulation start date (262.34(a)(2)).
  - One cubic yard box of PPE in the 90-day accumulation area did not have an accumulation start date. Facility personnel corrected this deficiency at the time of the inspection.
- Management of 90-day accumulation containers (262.34(a)(1)(i) and 265.171 – 178). No violations were observed during this inspection.
- Management of satellite accumulation containers (262.34(c)(1)(i) and 265.171 – 178). No violations were observed during this inspection.
- Contingency plan (262.34(a)(4) and 265.52). No violations were observed during this inspection.
- Training (262.34(a)(4) and 265.16).
  - The facility did not ensure a person trained in hazardous waste management was conducting the training. Both Messrs. Shober and Ganison require additional hazardous waste training.
- Preparedness and prevention (262.34(a)(4) and Part 265, Subpart C). No violations were observed during this inspection.

**Subpart D, Recordkeeping and Reporting (262.40 – 262.44).** No violations were observed during this inspection.

## OTHER COVERAGE AREAS

**Permit Requirements (Part 100).** No violations were observed during this inspection.

**Land Disposal Restrictions (Part 268).** No violations were observed during this inspection.

### Used Oil (Part 279).

On the day of this inspection, the facility was generating used oil and storing the used oil in a container in the Mechanical Room. The container was not properly marked or labeled with the words "Used Oil." Facility personnel corrected this deficiency at the time of the inspection.



Colorado Department of Public Health and Environment  
Hazardous Materials and Waste Management Division  
Hazardous Waste Inspection Report  
for a  
Large Quantity Generator



Colorado Department  
of Public Health  
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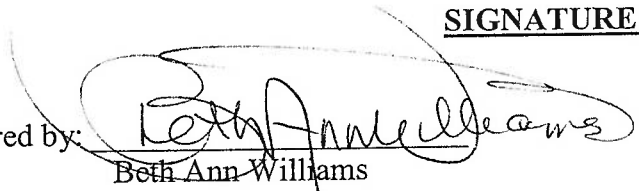
**COMPLIANCE ASSISTANCE/CLOSE-OUT MEETING**

The inspectors conducted a closeout conference with facility personnel prior to leaving the facility. At the closeout meeting, the inspectors provided facility personnel with verbal information on the Colorado Hazardous Waste Regulations and a copy of the Division's *Guide to Generator Requirements of the Colorado Hazardous Waste Regulations* and several additional guidance documents.

The inspectors completed a Notice of Inspection (Attachment #1) and a Compliance Advisory (Attachment #2) that were signed by John Shober prior to leaving the facility. Mr. Shober was provided with a copy of the documents.

**SIGNATURE BLOCK**

Prepared by:

  
Beth Ann Williams

  
Date

Reviewed by:

  
Joyce Williams

  
Date

**ATTACHMENTS**

1. Notice of Inspection
2. Compliance Advisory

About Solar  
COR000220137

Attachment #1

Colorado Department of Public Health and Environment  
Hazardous Materials and Waste Management Division  
4300 Cherry Creek Drive South, Mail Code: HMWMD-CP-B2, Denver, Co 80246-1530  
(303) 692-3300

## Notice of Inspection

Facility Name <u>Abound Solar, Inc.</u>		EPA I.D.# <u>COR000220137</u>	Date <u>3/2/10</u>
Street <u>9586 E. 1-25th Ave Rd.</u>		Inspection Arranged Prior to Inspection ( <input checked="" type="checkbox"/> ) YES ( <input type="checkbox"/> ) NO	Hour In: <u>9:00</u>
City <u>Vongmont</u>	County <u>Weld</u>	Zip <u>80504</u>	Hour Out: <u>12:30</u>
Facility Representatives <u>John Shoben</u>		Enter By: ( <input checked="" type="checkbox"/> ) Consent ( <input type="checkbox"/> ) Warrant	Agency: ( <input checked="" type="checkbox"/> ) State ( <input type="checkbox"/> ) Oversight ( <input type="checkbox"/> ) Joint
Titles <u>EHS Manager</u>		Telephone # <u>303-682-6118</u>	

CURRENT NOTIFICATION(S) ☒ LQG, ☐ SQG, ☐ Exempt, ☐ LDF, ☐ TSF, ☐ Transporter, ☐ Non-Notifier, ☐ Transfer facility or ☐ Other To Change Status; Facility must send Letter or Revised Notification.

Comments:

A combination complaint inspection and compliance evaluation inspection was conducted on 3/2/10.

See Compliance Advisory.

**Assistance Delivered During Inspection (for internal use - check ALL that apply):**

**Compliance Assistance:**  
☒ Generator Handbook ☒ Field Assistance  
☒ Other guidance documents ☐ Referral to another program  
Change in generator status ☐ downward ☐ upward

**Pollution Prevention:**  
☐ Guidance/Referral  
☐ Field Assistance

**Current Waste Minimization:**  
☐ Product Substitution  
☐ Distillation of solvents on site  
☐ Elementary Neutralization  
☐ Other

Samples, Documents, Plans, and / or Photos Collected

1. No photos taken

2. No copies taken

3.

4.

State personnel will review the facts established by this inspection. A final determination of your facility's compliance with State Regulations will be made as a result of this review. The review may reveal additional violations.

Receipt of this Notice of Inspection Form is Acknowledged

Lead Inspector: Beth Williams

Assisting Inspector(s) and Multimedia Participant(s)  
Jaye Williams

[Signature]  
Signature of Facility Representative

Abound Solar  
COR000220137

## Attachment #2



Colorado Department  
of Public Health  
and Environment

COMPLIANCE ADVISORY

FACILITY:

*Abound Solar Inc.*

EPA ID #: *COR000220137* DATE: *3/02/10*

ADDRESS: *9586 E I-25 Frontage Rd*  
*Longmont Co 80504*

This Compliance Advisory provides notice related to information gained during inspection of the above named facility on the date shown. We advise you that the inspector(s) believes that the "Deficiencies" listed below are violations of Colorado's hazardous waste laws and the "Potential Deficiencies" listed below may be violations of Colorado's hazardous waste laws. A review of the facts established during this inspection by Department personnel may result in revision of this Compliance Advisory to include appropriate additions or clarifications.

Please be aware that you are responsible for complying with the State hazardous waste regulations and that there are substantial administrative and civil penalties for failing to do so. Section 25-15-309, C.R.S. provides that any person who violates Section 25-15-308, C.R.S., which includes the Colorado Hazardous Waste Act ("the Act"), Sections 25-15-101 to 515, C.R.S., and the Colorado Hazardous Waste Regulations ("the Regulations"), 6 CCR 1007-3, may be subject to an administrative penalty of not more than \$15,000 per violation per day during which such violation occurs or to a civil penalty of not more than \$25,000 per violation per day during which such violation occurs. The issuance of this Compliance Advisory does not limit or preclude the Department from pursuing its enforcement options concerning this inspection, including issuance of a Compliance Order and assessment of penalties. Also, this Compliance Advisory does not constitute a bar to enforcement action for conditions that the inspector(s) did not observe or evaluate, or conditions found during future inspections of your facility.

Depending on the evaluation and explanation of the factual circumstances surrounding the "Deficiencies" and "Potential Deficiencies" of the Act and/or the Regulations, you may avoid additional enforcement action or you may reduce the penalties described above by either: (1) correcting the "Deficiencies" and "Potential Deficiencies" within a reasonable time; or (2) demonstrating to the Department that the "Deficiencies" and "Potential Deficiencies" are not violations of the Act and/or the Regulations. Correction of the "Deficiencies" and "Potential Deficiencies" found to be violations of the Act and/or the Regulations does not limit or preclude the Department from pursuing its administrative and/or civil enforcement options with regard to those "Deficiencies" and "Potential Deficiencies" identified in this Compliance Advisory. To address the issues identified in this Compliance Advisory, we encourage you to contact the Compliance Officer listed below, and where necessary, schedule a meeting:

- A) To discuss the Compliance Advisory and answer any questions you may have;
- B) To develop a schedule for correcting the "Deficiencies" and "Potential Deficiencies"; or
- C) To submit information necessary to successfully show that the "Deficiencies" and "Potential Deficiencies" (or any of them) are not violations of Colorado's hazardous waste laws.

*Beth Williams*, Compliance Officer  
Hazardous Materials and Waste Management Division  
Colorado Department of Public Health & Environment  
Mail Code: HMWMD-B2  
4300 Cherry Creek Drive South  
Denver, Colorado 80246-1530  
Tel: (303) 692-~~3200~~ *3429*

Failure to respond in a timely fashion to this Compliance Advisory will be considered in any subsequent enforcement action and the assessment of administrative and/or civil penalties.

COMPLIANCE ADVISORY

Page 2 of 22

FACILITY: <u>Abound Solar Inc</u>	EPA ID#: <u>COR</u> <u>00 0220 137</u>	DATE: <u>3/2/10</u>
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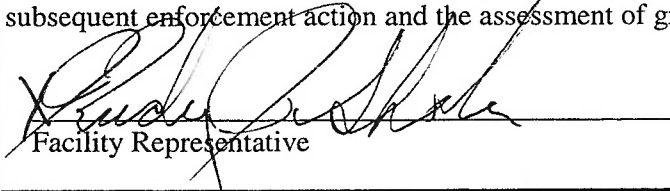
**DEFICIENCIES, POTENTIAL DEFICIENCIES OR CONCERNS NOTED**

- 1) Ensure 90-day storage <sup>container</sup> ~~area~~ of PPE is marked with the words "Hazardous Waste."  
6 CCR 1007-3, section 262.34(a)(3)
- 2) Ensure an accumulation start date is clearly marked on the 90-day storage container of PPE.  
6 CCR 1007-3, section 262.34(a)(2)
- 3) Ensure all containers of used oil are marked with the words "Used Oil." 6 CCR 1007-3, section 279
- 4) Ensure a person trained in haz waste management conducts the haz waste training program  
6 CCR 1007-3, sec 262.34(a)(4) + 265.16(a)
- 5) Ensure personnel are trained within 6 mos of new or changed employment.
- 6) Ensure each employee position has a job title, name of person filling position, and written job description, education and duties.  
6 CCR 1007-3, sections 265.16(a)(b) + (c)

~~#~~ Please respond by 4/2/2010 (in writing)

~~See next page~~

I acknowledge that the "Deficiencies and "Potential Deficiencies" listed above have been identified for me and I have been advised to contact the above-listed Compliance Officer to close out this Compliance Advisory. I have also been advised that failure to respond in a timely fashion to this Compliance Advisory will be considered in the issuance of any subsequent enforcement action and the assessment of greater administrative and/or civil penalties.

  
Facility Representative